



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/085,369	02/28/2002	Hee-Jueng Lee	5649-958	6590

20792 7590 06/16/2003

MYERS BIGEL SIBLEY & SAJOVEC
PO BOX 37428
RALEIGH, NC 27627

EXAMINER

LE, THAO P

ART UNIT PAPER NUMBER

2818

DATE MAILED: 06/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/085,369

Applicant(s)

LEE ET AL.

Examiner

Thao P Le

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Acknowledge is made of applicants' claim for foreign priority base on an application 2001-35701 filed in KOREA on 06/22/2001.

It is noted that Applicants have filled a certified copy of said application as required by U.S.C 119, which papers have been placed of record in the file.

Oath/Declaration

2. The oath/declaration filed on 02/15/2002 is accepted.

Election/Restriction

3. Examiner confirms that Applicants elected to prosecute Claims 1-13 and cancel claims 14-19 without prejudice.

Information Disclosure Statement

4. This office acknowledges of the following item from the Applicant:
Information Disclosure Statement (IDS) filed on **02/28/02** and made of record as Paper No. 2. The references cited on the PTOL 1449 form have been considered.

5. The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

6. Claims 1, 3 are objected to because of the following informalities:

In claim 1, the commas in lines 3 and 9, the sentence in lines 3-4 --- on an insulating layer on an integrated circuit substrate---

In claim 3, lines 23-24 --- forming a second conductive layer pattern: removing the capping layer---

Applicant is required to check grammar and to provide an appropriate correction.

Claim Rejections

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-5, 8-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Hong, U.S. Patent No. 5,352,619.

Regarding to claim 1, Hong discloses a method of forming ROM device similar to what recited in claim 1. See Figs. 1-4 and depending portions of specification. Hong discloses the method of forming ROM comprising: forming a first conductive layer pattern (14, 16, 18, Fig. 1) including a sidewall on an insulating layer 12 which is on an integrated circuit substrate 10, implanting ions into the substrate using the first conductive pattern as an implantation mask (Fig. 1), thermally oxidizing at least a portion of the substrate (32, Fig. 2) and at least a portion of the sidewall (34, Fig. 3) to form a thermal oxide layer and a buried doping layer 24 from the implanted ions beneath the thermal oxide layer, forming a second conductive layer pattern 36 (Fig. 4) on at least a portion of the thermal oxide layer and on at least a portion of the first conductive layer pattern (Fig. 4).

Regarding to claim 2, Hong discloses that thermally oxidizing process only oxidizing at least a portion of the substrate and sidewall without oxidizing the top and bottom (Figs. 2-3).

Regarding to claims 3-5, Hong discloses the first conductive layer pattern comprises a first conductive layer 14, a capping layer (16, 18), a photoresist pattern 20 and etching the capping layer and the first conductive layer using the photoresist pattern as an etch mask (Cols. 2-3) and then the photoresist pattern 20 is removed (Fig. 2).

Regarding to claim 8, Hong discloses the first and second conductive layer comprises polysilicon (Cols. 2-3).

Regarding to claim 9, Hong discloses the capping layer 16 comprises silicon nitride.

Regarding to claims 10-11, Hong discloses the method in claim 1 further comprising selectively programming the ROM and selectively implanting ions into the substrate.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 6-7, 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hong, U.S. Patent No. 5,352,619.

Regarding to claims 6-7 and 12, Hong discloses the method of forming ROM including the steps of forming a capping layer 16, another layer 18 on the capping layer, a photoresist pattern layer 20 on the layer 18. However, Hong doesn't disclose that the layer 18 is an organic antireflection layer or a hard mask. It would have been obvious in the art that the layer 18 which is formed of silicon oxide would have carried out the same function as the antireflection layer or a hard mask. In addition, the limitations recited in claims 6, 7, and 12 have not been alleged by applicant to be of significant importance for patentability.

Regarding to claim 13, Hong discloses the method of forming ROM wherein the sidewall is not formed on the sidewall of the first conductive pattern when forming the first conductive layer and thermally oxidizing the sidewall. However, Hong fails to disclose that the sidewall spacer is not present when thermally oxidizing the substrate. It would have been obvious in the art to reduce steps by thermally oxidize the substrate and sidewall at one time as in present invention rather than perform it in two steps such as oxidizing the substrate with the spacer, removing the spacer, and then oxidizing the sidewall.

11. If Applicants are aware of better art than that which has been cited, they are required to call such to attention of the examiner.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao P. Le whose telephone number is 703-605-1187. The examiner can normally be reached on Monday-Thursday 7:30am-6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 703-308-4910. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Thao Phuong Le

Examiner